PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
B44F 9/04, E04F 13/14, E04C 1/40, C04B 28/04 // (C04B 28/04, 24:26, 103:54)

A1

(11) International Publication Number: **WO 99/08885**

(43) International Publication Date: 25 February 1999 (25.02.99)

(21) International Application Number: PCT/GB98/02478

(22) International Filing Date: 19 August 1998 (19.08.98)

(30) Priority Data:

9717550.9	19 August 1997 (19.08.97)	GB
9723435.5	5 November 1997 (05.11.97)	GB

(71)(72) Applicant and Inventor: CLOWES, Dean, James [GB/GB]; 26 Wallcote Avenue, London NW2 1AU (GB).

(74) Agent: EDER, Ephry; E. Eder & Co., 39 Cranbrook Road, Olford, Essex IG1 4PA (GB).

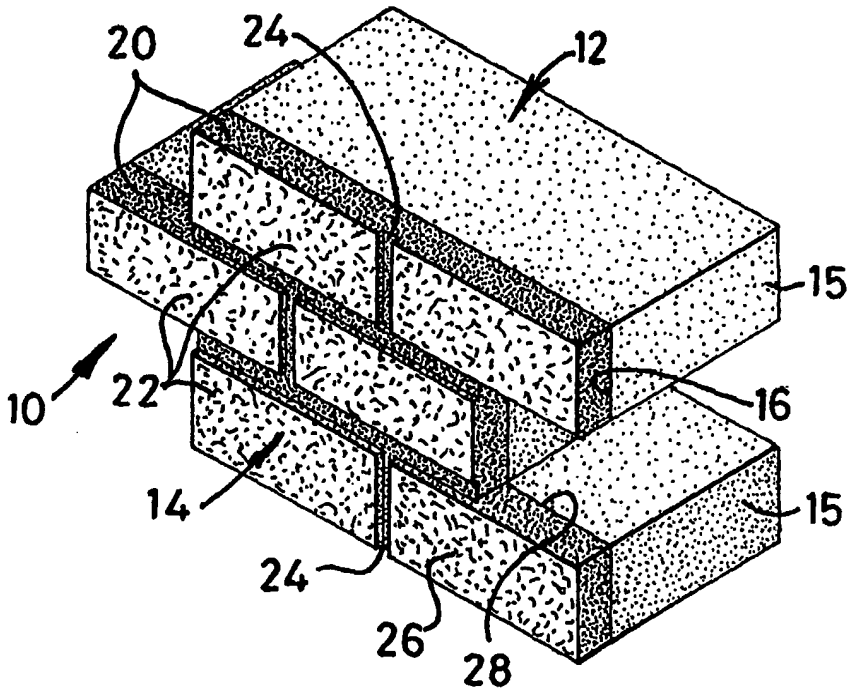
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: BUILDING ELEMENTS, COATINGS THEREFOR AND METHODS OF APPLYING THEM

(57) Abstract

A building element comprising a casting of settable material to form a brick-like facing having a front face and a rear face in registry with one another, the front face having the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course. The set casting is adhered by its rear face to a support member, e.g. a tile or like article of fired clay or a breeze block. The simulated brick-like appearance for the front face is obtained by providing that face with surfacial interruptions in the form of elongate indentations extending in mutually perpendicular directions to represent mortar between adjoining bricks and, by means of a roller, applying to that interrupted surface a coating material having as constituents: (a) a first adhesive comprising styrene butadiene, (b) a second adhesive comprising polyvinyl adhesive, and (c) a cementitious powder, and then scattering thereon sand and/or other particulate material. A colouring pigment may be included in the coating or, if a plurality of coatings is employed, in the topmost coating.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
AM	Armenia	**FI**	Finland	**LT**	Lithuania	**SK**	Slovakia
AT	Austria	**FR**	France	**LU**	Luxembourg	**SN**	Senegal
AU	Australia	**GA**	Gabon	**LV**	Latvia	**SZ**	Swaziland
AZ	Azerbaijan	**GB**	United Kingdom	**MC**	Monaco	**TD**	Chad
BA	Bosnia and Herzegovina	**GE**	Georgia	**MD**	Republic of Moldova	**TG**	Togo
BB	Barbados	**GH**	Ghana	**MG**	Madagascar	**TJ**	Tajikistan
BE	Belgium	**GN**	Guinea	**MK**	The former Yugoslav Republic of Macedonia	**TM**	Turkmenistan
BF	Burkina Faso	**GR**	Greece			**TR**	Turkey
BG	Bulgaria	**HU**	Hungary	**ML**	Mali	**TT**	Trinidad and Tobago
BJ	Benin	**IE**	Ireland	**MN**	Mongolia	**UA**	Ukraine
BR	Brazil	**IL**	Israel	**MR**	Mauritania	**UG**	Uganda
BY	Belarus	**IS**	Iceland	**MW**	Malawi	**US**	United States of America
CA	Canada	**IT**	Italy	**MX**	Mexico	**UZ**	Uzbekistan
CF	Central African Republic	**JP**	Japan	**NE**	Niger	**VN**	Viet Nam
CG	Congo	**KE**	Kénya	**NL**	Netherlands	**YU**	Yugoslavia
CH	Switzerland	**KG**	Kyrgyzstan	**NO**	Norway	**ZW**	Zimbabwe
CI	Côte d'Ivoire	**KP**	Democratic People's Republic of Korea	**NZ**	New Zealand		
CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

BUILDING ELEMENTS, COATINGS THEREFOR AND METHODS OF APPLYING THEM

DESCRIPTION

Technical Field

This invention relates to building elements, coatings for building elements, and methods of applying coatings to building elements. Particularly, but not exclusively, to elements to provide a brick-like appearance to walls and other structures.

Background Art

It is known to construct buildings with cavity walls having an inner leaf of breeze block and an outer leaf of brickwork. The spacing between the two leaves is for thermal insulation purposes. The constructional cost of cavity walls can be reduced substantially by constructing the wall as just a single leaf of breeze blocks having a U-value (a thermal insulation measure) equivalent to that of a cavity wall, the outer face of the wall being sealed and rendered and then coated with masonry paint to improve the wall's weather resistance. However the appearance of a rendered wall is generally less aesthetically pleasing than that of a brick wall, and this is especially so when the paint coating cracks or peels.

Suggestions for building elements to represent a plurality of stones or bricks have been made in the past including, for example, the disclosures in GB-2312010, GB-2197005, GB-2124675, GB-1014140, EP-0442863, US-4644719, US-4183188 and US-2819495.

Summary of the Invention

According to a first aspect of this invention there is provided a coating material to be applied to a building element, said material being characterised by having as constituents:

(a) a first adhesive comprising styrene butadiene,

(b) a second adhesive comprising polyvinyl adhesive,

(c) a cementitious powder, and

(d) particulate material to be scattered onto a mixture of the constituents (a), (b) and (c) after the latter have been applied as a coating to the building element.

Preferably the coating material includes, as a constituent, a colouring pigment – advantageously in powdered form.

Advantageously, the cementitious powder comprises ordinary Portland cement or high-fired Portland cement or a mixture thereof.

Preferably, where the coating material includes the colouring pigment as a constituent, the cementitious powder comprises a mixture of 20% to 80% ordinary Portland Cement and 80% to 20% high-fired Portland Cement, the proportions being dependent upon the colour of the pigment.

Advantageously the constituents (a), (b) or (c) are in substantially equal parts by volume, preferably mixed with a substantially equal part of water.

In one preferred arrangement the constituents are provided in separate receptacles within an outer packaging member.

According to a second aspect of this invention there is provided a method of applying to a building element a coating material according to the first aspect of this

invention and with a colouring pigment added to the mixture of constituents (a), (b) and (c) prior to the scattering thereon of the particulate material.

According to a third aspect of this invention there is provided a method of applying to a building element a coating material according to the first aspect of this invention, said material further comprising – as a constituent – a colouring pigment, characterised in that said colour pigment is mixed with the particulate material prior to scattering both the particulate material and the colouring pigment together onto the said mixture of constituents (a), (b) and (c) applied as a coating on the building element.

Preferably, with either method, the building element has an interrupted surface and the said mixture of constituents (a), (b) and (c) is applied as a coating on the surfacially-interrupted face of the building element by a roller and such that there is little or no entry of said mixture into the surfacial interruptions. Advantageously the surfacial interruptions comprise elongate indentations extending in mutually perpendicular directions to represent mortar between adjoining bricks.

According to a fourth aspect of the present invention there is provided a building element having a brick-simulated surface provided by a method according to a said method.

The building element is preferably characterised in that the brick-simulated surface has the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course.

Preferably the building element is characterised in that at least one pair of superimposed courses has the two opposed side edges of one course staggered laterally with respect to the two opposed side edges of the other course.

In a preferred embodiment the building element is characterised in that the said bricks and courses are bounded by simulations of mortar which, away from a perimeter of the building element, have a nominal mortar width and which, at the perimeter of the building element, have a width of half the nominal mortar width (such that two such elements placed edge-to-edge can simulate a mortar course of said nominal width).

Advantageously the building element comprises a formation formed from settable material, e.g. a plaster or render.

According to a fifth aspect of this invention there is provided a casting of settable material to form a brick-like facing having a front face and a rear face in registry with one another, the front face having the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course, the bricks and courses being bounded by simulations of mortar which, away from a perimeter of the building element, have a nominal mortar width and at the perimeter of the building element have a width of half the nominal mortar width.

Advantageously said brick-like appearance is provided by one or more coatings of an adhesive upon which sand and/or other particulate material is scattered.

According to a sixth aspect of the present invention there is provided a casting of settable material to form a brick-like facing having a front face and a rear face in registry

with one another, the front face having the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course, said brick-like appearance being provided by at least one coating of an adhesive upon which sand and/or other particulate material has been scattered.

Conveniently (and for building elements according to either of the last two paragraphs), said coating, or the last of said coatings, may include a brick-coloured pigment which, advantageously, is applied by a roller.

In one preferred embodiment according to this invention the building element comprises a set (i.e. self-supporting) casting adhered by its rear face to a support member. Said support member may be a tile or like article of fired clay. Alternatively (and preferably) said support member may be a breeze block.

Advantageously the support member has forward and rearward faces in registry with one another and with the front and rear faces of the casting.

Preferably the side contour of the building element is of modular form, preferably of castellated modular form to enable a plurality of such elements to interfit, preferably interdigitate, with one another.

According to a seventh aspect of this invention there is provided a method of making a building element, said method comprising the steps of casting or molding a plurality of support members of a uniform modular outline shape enabling them to interfit with one another, casting or molding a plurality of brick-like facings of corresponding outline shape, and adhering respective facings and support members

to one another either before or after applying to the facings – on their surfaces (to be) away from the support members – one or more coatings of a material according to said first aspect of the invention.

Brief Description of the Drawings

By way of example embodiments of this invention will now be described with reference to the accompanying drawings of which:

Figure 1A is a perspective front view of a building element according to a first embodiment of this invention,

Figure 1B is a front elevation of the element of Fig 1A,

Figure 2 is a perspective rear view of the building element of Figs 1A and 1B,

Figure 3 is a perspective front view of a building element according to a second embodiment of this invention,

Figure 4 is a perspective front view of a building element according to a third embodiment of this invention,

Figure 5 is a plan view of a building element according to a fourth embodiment of this invention,

Figure 6 is a perspective front view of a building element according to a fifth embodiment of this invention, and

Figure 7 is a perspective front view of building elements providing a modification of the arrangement suggested in Fig 6.

Detailed Description of Example(s) of the Invention

The building element 10 shown in Figs 1 and 2 comprises a breeze block 12 and a pre-formed facing element adhered to one another.

The breeze block 12 is pre-formed as by casting of conventional materials (e.g. compressed ash) to have a toothed or castellated modular shape with substantially flat front and rear surfaces 16,18. Following its removal from the casting mold, the block 12 has its pores sealed by submerging it in a suitable sealant. The sealant may be a solution comprising a mixture of pva and styrene butadiene.

The pre-formed facing element 14 is separately cast or molded in a mold of similar toothed or castellated outline shape from a render material comprising, for example, sand, portland cement and water. One surface of the wet, impressionable render is embossed with a 3-dimensional surface patterning representing three courses of staggered brickwork 20 with two simulated bricks 22 per course, the simulated bricks 22 being separated horizontally and vertically by elongate indentations 24 (e.g. of triangular or semi-circular cross-section) to represent pointing and/or mortar between the simulated bricks 22 (see Fig 1).

The embossing may be provided on the lower surface of the render in the mold by the mold's bottom face. Alternatively the embossing may be provided on the upper face of the render in the mold by a separate, suitably shaped tool or a mold piston plate pressed onto the render mixture's upper surface.

When the cast render material has set, it is removed from the mold and its embossed surface is coated with first, second and third layers of adhesive, each adhesive layer having sand loosely and randomly scattered thereon and being allowed to dry before the next adhesive layer is applied. This ensures that the simulated brickwork representation 20 has a very realistic texture.

The adhesive employed may comprise a mixture or blend of a styrene butadiene copolymer adhesive and a polyvinyl adhesive, together with ordinary Portland cement or high-fired Portland cement (white) or a mixture of these cements, water and, if wanted, a suitable colouring pigment (e.g. a coloured stone dust such as that known as "Jahn") to provide a desired texture and consistency (and colour).

To prepare the adhesive, the styrene butadiene copolymer is mixed with the cement, and the polyvinyl adhesive added thereto prior to adding the water and any desired colour pigment.

The adhesive may comprise substantially equal parts by volume of

(a) styrene butadiene,

(b) ordinary Portland cement or high-fired Portland cement (white) or a mixture thereof, and

(c) polyvinyl adhesive.

Typically, the adhesive may have the following approximate composition:

25 parts by volume styrene butadiene,

25 parts by volume of a cementitious powder such as ordinary Portland cement or high-fired Portland cement (white) or a mixture thereof,

25 parts by volume polyvinyl adhesive, and

25 parts by volume water.

Each adhesive coating is applied by a roller to avoid or minimise the application of adhesive in the grooves 24 and, following sand being scattered thereon, a resultant brick-like effect for those grooves which are to provide a simulation or represention of inter-brick mortar.

Also, at least the last coating of adhesive includes a suitable pigment to provide a suitable brick-like colouration to the front face 26 of the facing element 14 (except across the inter-brick mortar simulations or representations of grooves 24). With advantage, the pigment utilised is an organic, non-oil-based, powder colourant. Preferably the cementitious powder is a mixture of between 20% to 80% of ordinary Portland Cement and 80% to 20% of high-fired Portland Cement (white), the precise proportions of these two depending on the colour desired for the coating and the colour of the pigment powder included in the mixture with the two adhesives.

The two separately formed elements 12 and 14 are then bonded to one another by a suitable adhesive between the front face 16 of the breeze block 12 and the flat rear face 28 of the facing element 14. The adhesive employed may be similar in composition to that used for coating the embossed surface of the element, but omitting any colour pigment and at least some of the added water.

It will be appreciated that, due to their formation in similarly shaped and dimensioned molds, the two elements 12,14 lie in registry with one another and form, when fully bonded, a single composite building element of the toothed or castellated modular shape of Figs 1 and 2.

This composite building element 10 may, for example, have an overall length of about 60cms (23"), a overall depth of about 24cms (9.5"), and a height of about 34cms (13.5").

To erect a wall from a plurality of building elements 10, the elements can be readily interfitted with one another (in an interdigitating, mortice-and-tenon fashion with the elements 10 of Figs 1 and 2), with authentic mortar or, as is preferred, a further coating of adhesive, provided

between the adjoining vertical and horizontal contoured surfaces 25,35 of the element's sides. The option of adhesive coating of the contoured sides 25,35 is possible if each composite element 10 is provided at one end with mortar representations to all its vertical edges at 25 (and, optionally, to all its horizontal edges at 35).

Advantageously, as shown in Fig 1B, all the mortar representations 23 at the perimeter of the building element 10 have a width of 5mm, i.e. half the nominal mortar width value of 10mm, so as to provide an overall composite width of 10mm when adjoining building elements are interfitted end to end or are superimposed one upon the other. This enables that the finished structure to have a matching appearance as between the composite mortar representations 23 (provided by two adjoing elements 10) and the inward mortar representations 21 which are all of the nominal 10mm width. This feature, in conjunction with providing the building elements of a uniform modular outline shape enabling them to interfit with one another, also enables the building elements to be non-handed, i.e. they can be placed together either way up, and this eases and speeds up wall assembly from such building elements.

The building element 30 of the embodiment of Fig 3 is constructed in a substantially similar manner to that of building element 10 of Figs 1 and 2, and likewise comprises a breeze block 32 having adhesively bonded thereto a facing 32 representing a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course. However, building element 30 has the different shape of a series of steps; and a wall built from a plurality of such modular building elements 30 will have them interfit with one another sideways rather than interdigitate with one

another sideways as is the case with building elements 10 of Figs 1 and 2.

For use with the building element 10, in particular, a corner element 40 can be produced substantially as shown in Fig 4. Here again the construction is by joining a pre-cast breeze block 42 and a pre-cast render material facing 44 of similar outline to block 42, the facing 44 extending over two flat faces of the breeze block 42 that adjoin one anther to form an arris.

As an alternative to a single corner element 40, and for a conventional four-inch thick wall, two elements 10' and 10" can be employed which are each substantially similar to the element 10 of Figs 1A and 1B. Element 10' (Fig 6) has its two most laterally projecting side faces 25 provided with a brick-like facing such as that on the element's front face 22. Element 10" (not shown) has its one most laterally projecting side face 35 similarly provided with a brick-like facing such as that on the element's front face 22. When the two elements 10' and 10" are interfitted with one another at 90° to form a corner construction, the brick-faced representation extends all round the corner.

Where such a two-element corner construction is to be effected for a nine-inch thick wall, the brick facing arrangement for the two elements 110' and 110" (Fig 7) is modified to provide a "half-brick-overlap" or Flemish-brickwork appearance. In this, the two most laterally projecting side faces 25' of corner element 110' have facings which substantially represent two half-bricks, and the one most laterally projecting side face 35" of corner element 110" has a facing which substantially represents two half-bricks. When the two elements 110' and 110" are interfitted with one another at 90° to form a corner

construction, the brick-faced representation extends all round the corner.

The building element 50 of Fig 5 has its pre-cast facing 54 extending over all four sides of the breeze block 52. The latter is centrally apertured at 55 to permit a plurality of elements 50 to be mutually superimposed to form a pillar whilst permitting a gate post, electrical conduit or other rod or pipe to be mounted and secured in the vertically aligned apertures 55.

The embodiments of Figs 1, 2, 3, 6 or 7, may be modified to provide facings such as 20 and/or 30 mounted onto different support members, e.g. shaped tiles or other structures of less depth than the breeze blocks 12 and 32. This will allow the facings to be readily applied to a wooden or metal framework to create a representation of a genuine brick wall, e.g. as a facade around a domestic hearth fire.

Other modifications and embodiments of the invention, which will be readily apparent to those skilled in this art, are to be deemed within the ambit and scope of the invention, and the particular embodiment(s) hereinbefore described may be varied in construction and detail, e.g. interchanging (where appropriate or desired) different features of each, without departing from the scope of the patent monopoly hereby sought. Furthermore the invention is not limited to the coated building element per se but also includes in its scope the coating material – which, for example, may be supplied as its individual constituents in separate receptacles within an outer packaging member – and the method of applying it to a building element.

The illustrated building elements provided with coatings as described above demonstrated (in tests) surprisingly good resistance to weathering and moisture ingress. This is

thought to be due to the substantial sealing of the pores of the element that result from its being coated with the mixture containing the two adhesive materials (which also serve as a binder for the cementitious powder and, in the topmost coating, for the colouring pigment).

CLAIMS

1. A coating material to be applied to a building element, said material being characterised by having as constituents:

(a) a first adhesive comprising styrene butadiene,

(b) a second adhesive comprising polyvinyl adhesive,

(c) a cementitious powder, and

(d) particulate material to be scattered onto a mixture of the constituents (a), (b) and (c) after the latter have been applied as a coating to the building element.

2. A coating material according to Claim 1, characterised by having, as a further constituent, a colouring pigment.

3. A coating material according to Claim 2, wherein the colouring pigment is in powdered form.

4. A coating material according to any one of the preceding Claims, characterised in that the cementitious powder comprises ordinary Portland cement or high-fired Portland cement or a mixture thereof.

5. A coating material according to Claim 2 or 3 wherein the cementitious powder comprises a mixture of 20% to 80% ordinary Portland cement and 80% to 20% high-fired Portland cement, the proportions being dependent upon the colour of the pigment.

6. A coating material according to any one of the preceding Claims, wherein the constituents (a), (b) or (c) are in substantially equal parts by volume, preferably mixed with a substantially equal part of water.

7. A coating material according to any one of the preceding Claims, characterised in that said constituents are provided in separate receptacles within an outer packaging member.

8. A method of applying to a building element a coating material according to any one of Claims 1 to 7 when dependent from Claim 2, characterised in that said colouring pigment is added to the mixture of constituents (a), (b) and (c) prior to the scattering thereon of the particulate material.

9. A method of applying to a building element a coating material according to any one of Claims 1 to 7 when dependent from Claim 2, characterised in that said colouring pigment is mixed with the particulate material prior to scattering both the particulate material and the colouring pigment together onto the said mixture of constituents (a), (b) and (c) applied as a coating on the building element.

10. A method according to Claim 8 or Claim 9, characterised in that the building element has an interrupted surface and the said mixture of constituents (a), (b) and (c) is applied as a coating on the surfacially-interrupted face of the building element by a roller and such that there is little or no entry of said mixture into the surfacial interruptions.

11. A method according to Claim 10 wherein the surfacial interruptions comprise elongate indentations extending in mutually perpendicular directions to represent mortar between adjoining bricks.

12. A building element characterised by having a brick-simulated surface provided by a coating method according to any one of Claims 8 to 10.

13. A building element according to Claim 12 characterised in that the brick-simulated surface has the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course.

14. A building element according to Claim 12 or Claim 13, characterised in that at least one pair of superimposed courses has the two opposed side edges of one course staggered laterally with respect to the two opposed side edges of the other course.

15. A building element according to Claim 13 or Claim 14, characterised in that the said bricks and courses are bounded by simulations of mortar which, away from a perimeter of the building element, have a nominal mortar width and which, at the perimeter of the building element, have a width of half the nominal mortar width (such that two such elements placed edge-to-edge can simulate a mortar course of said nominal width).

16. A building element according to any one of Claims 12 to 15 and comprising a formation formed from a settable material, e.g. a plaster or render.

17. A building element comprising a casting of settable material to form a brick-like facing having a front face and a rear face in registry with one another, the front face having the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course, the bricks and courses being bounded by simulations

of mortar which, away from a perimeter of the building element, have a nominal mortar width and at the perimeter of the building element have a width of half the nominal mortar width.

18. A building element according to Claim 17 wherein said brick-like appearance being provided by at least one coating of an adhesive upon which sand and/or other particulate material has been scattered.

19. A building element comprising a casting of settable material to form a brick-like facing having a front face and a rear face in registry with one another, the front face having the appearance of a plurality of bricks in superimposed courses with at least one brick in one course being in staggered relation to a brick in an adjoining course, said brick-like appearance being provided by at least one coating of an adhesive upon which sand and/or other particulate material has been scattered.

20. A building element according to any one of Claims 17 to 19 wherein the side contour of the building element is of modular form to enable a plurality of such elements to interfit with one another.

21. A building element according to Claim 20, wherein the side contour of the building element is of castellated modular form to enable a plurality of such elements to interdigitate with one another.

22. A building element according to any one of Claims 13 to 21, said building element comprising a set (i.e. self-supporting) casting that is adhered by its rear face to a support member.

23. A building element according to Claim 22, wherein said support member is a tile or like article of fired clay.

24. A building element according to Claim 22, wherein said support member is a breeze block.

25. A method of making a building element, said method comprising the steps of casting or molding a plurality of support members of a uniform modular outline shape enabling them to interfit with one another, casting or molding a plurality of brick-like facings of corresponding outline shape, and adhering respective facings and support members to one another either before or after applying to the facings – on their surfaces (to be) away from the support members – one or more coatings of a material according to any one of Claims 1 to 7.

26. A coating material to be applied to a building element, said material being according to Claim 1 and substantially as herein described.

27. A method of applying to a building element a coating material according to Claim 26 and substantially as herein described.

28. A building element substantially as herein described with reference to and/or as illustrated in the accompanying drawings.

FIG.1A

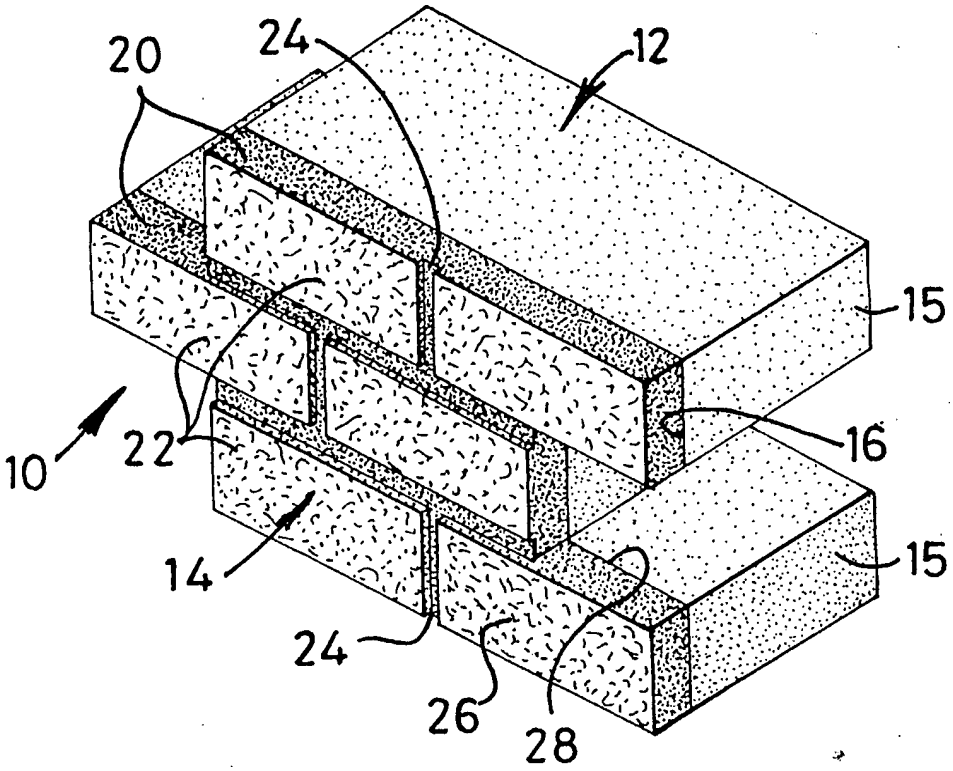
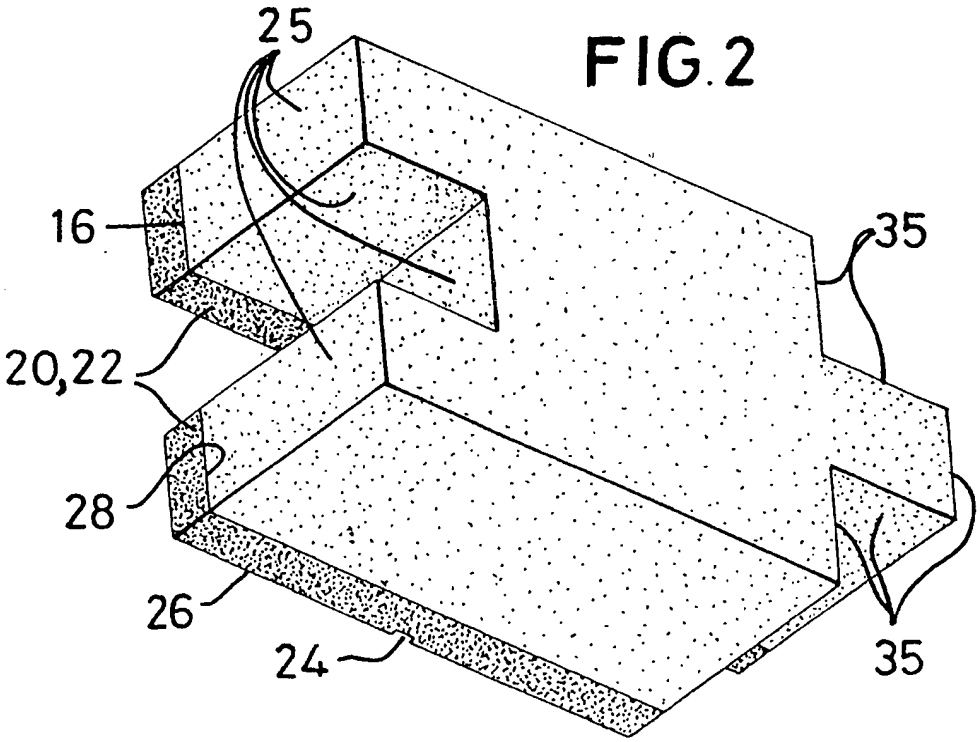


FIG.2



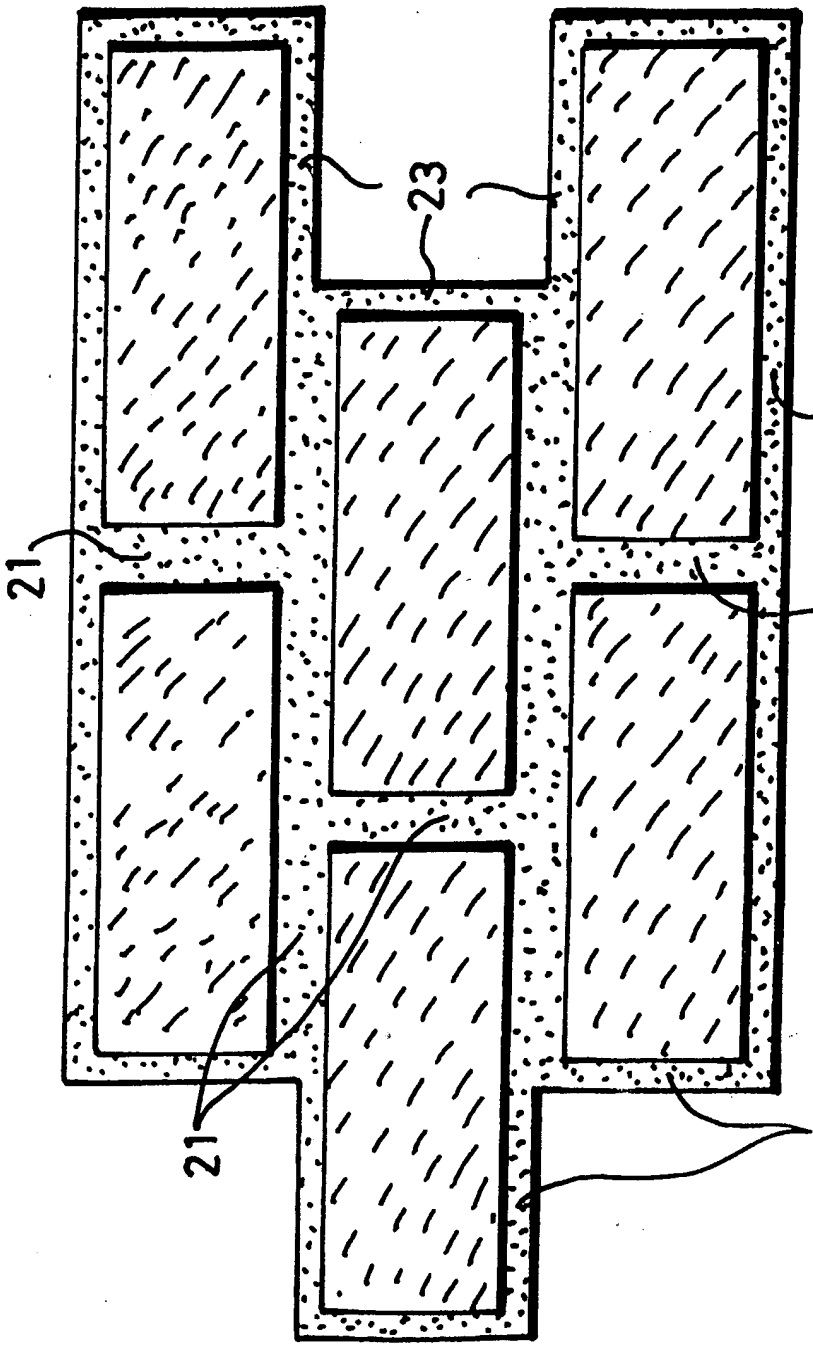
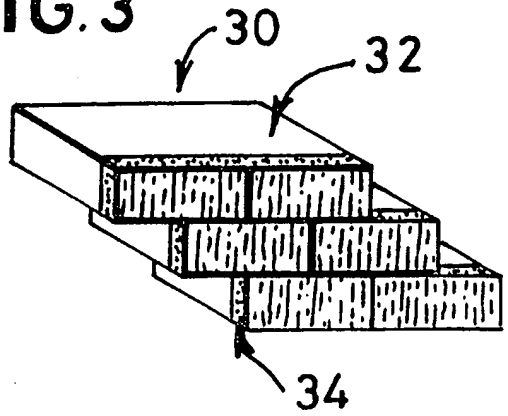


FIG.1B

FIG. 3



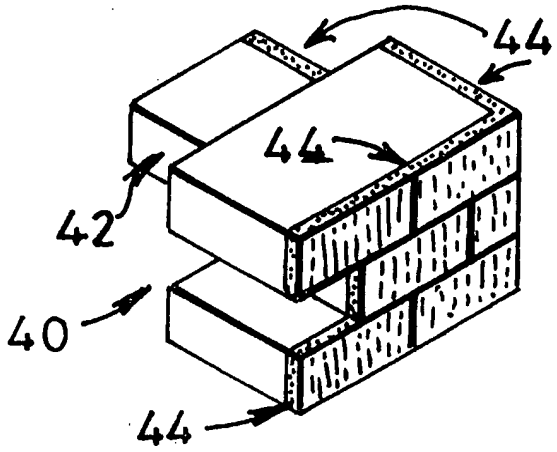


FIG. 4

FIG. 5

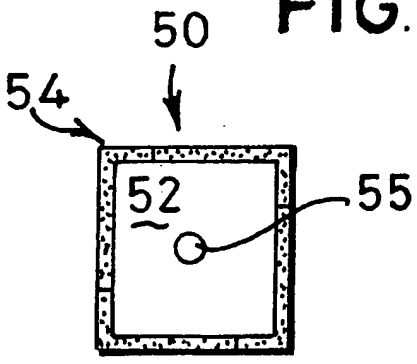


FIG.6

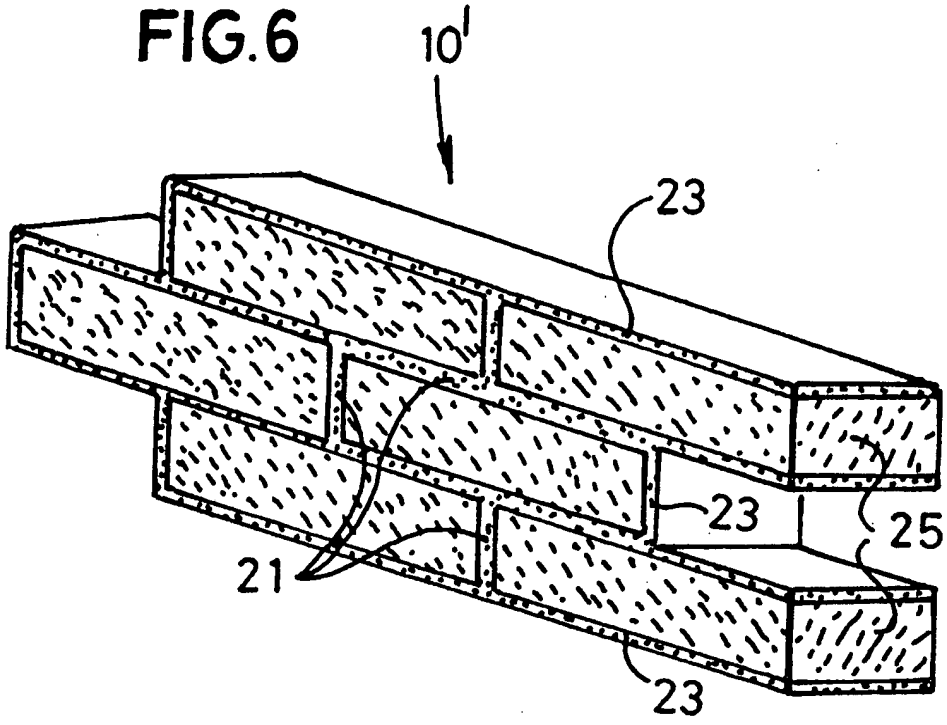
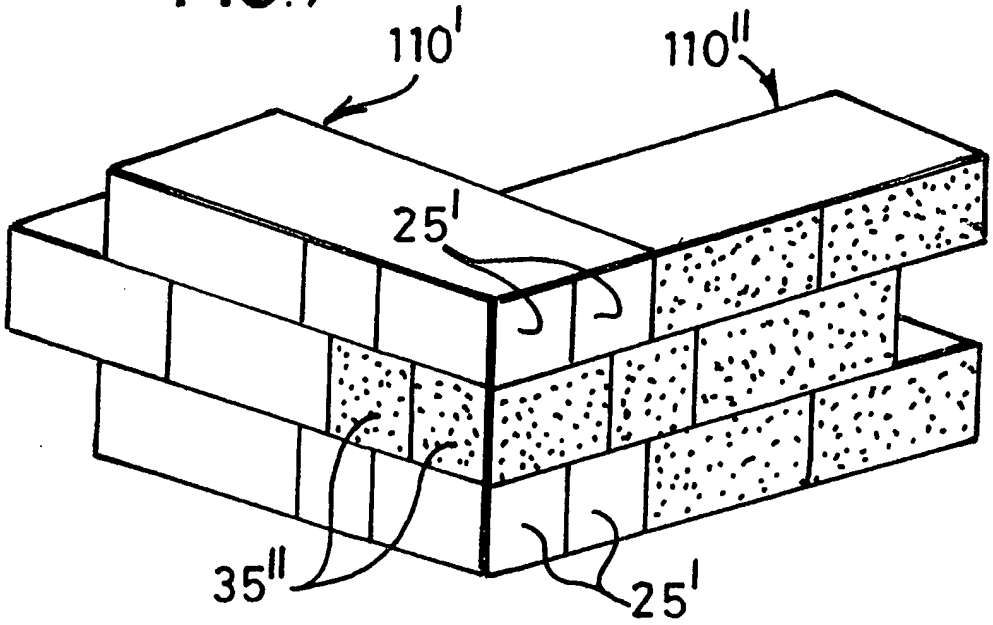


FIG.7



INTERNATIONAL SEARCH REPORT

Int. ational Application No
PCT/GB 98/02478

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B44F9/04 E04F13/14 E04C1/40 C04B28/04 //(C04B28/04, 24:26,103:54)

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C04B B44F E04C E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 376 895 A (BANBURY BUILDINGS HOLDINGS LTD) 11 December 1974	8,9, 12-20, 26-28
Y		10,11
A	see claims 1,3-6; figure 1 see page 2, line 20 - line 25 ---	1-3,6
X	US 4 644 719 A (SALAZAR EDWARD J) 24 February 1987 cited in the application	12-14, 16, 19-22, 26-28
A	see claims 1-3,7; figure 1 see column 8, line 30 - line 59 see column 9, line 10 - line 13 --- -/--	

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 November 1998	24/11/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Rosenberger, J

1

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Int. .tional Application No
PCT/GB 98/02478

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 7418 Derwent Publications Ltd., London, GB; Class A18, AN 74-33450V XP002084360 & JP 48 088121 A (ADACHI K) , 19 November 1973 see abstract	1-3,9, 26-28
A	---	8,12,25
X	GB 2 262 521 A (UNIV BIRMINGHAM) 23 June 1993 see claims 1-3 see page 5, line 7 - line 11	1,4,6

Y	GB 1 276 111 A (HARTNELL WILLIAM J) 1 June 1972	10,11
A	see claims 1,22; figure 4 see page 3, line 20 - line 39 see page 1, line 16 - line 21	2,12, 17-19, 24-28

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Im .tional Application No
PCT/GB 98/02478

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 1376895 A	11-12-1974	NONE	
US 4644719 A	24-02-1987	US 4590726 A	27-05-1986
GB 2262521 A	23-06-1993	NONE	
GB 1276111 A	01-06-1972	NONE	